SONY

3-864-023-41 (1)

Video Camera Recorder

Operating Instructions ____ US

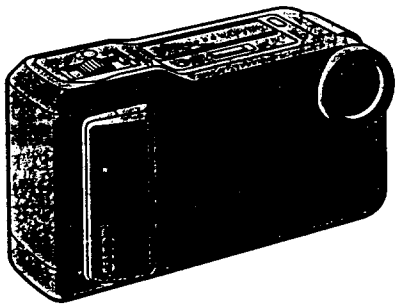
Mode d'emploi ____ FR

Owner's record

The model and serial numbers are located on the bottom. Record the serial number in the space provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. CCD-CR1 Model No. AC-VF10

Serial No. _____ Serial No. _____



Ruvi

CCD-CR1

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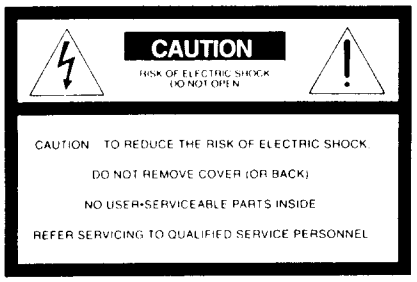
English

Welcome!

Congratulations on your purchase of this Sony camcorder. With your camcorder you can capture life's precious moments with superior picture and sound quality.

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION TO REDUCE THE RISK OF ELECTRIC SHOCK
DO NOT REMOVE COVER (OR BACK)
NO USER-SERVICEABLE PARTS INSIDE
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL

This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

DISPOSAL OF LITHIUM ION BATTERY.

LITHIUM ION BATTERY. DISPOSE OF PROPERLY.

You can return your unwanted lithium ion batteries to your nearest Sony Service Center or Factory Service Center.

Note: In some areas the disposal of lithium ion batteries in household or business trash may be prohibited.

For the Sony Service Center nearest you call 1-800-222-SONY (United States only)

For the Sony Factory Service Center nearest you call 416-499-SONY (Canada only)

Caution: Do not handle damaged or leaking lithium ion battery.

For the customers in the U.S.A.

CAUTION

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

Note:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

For the customers in CANADA

CAUTION

TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED AC PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

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Before you begin

Before operating the unit, please read this manual thoroughly, and retain it for future reference.

About the recording system

- The picture and sound are recorded onto the video cartridge for this camcorder.
- The video cartridge for this camcorder is installed already. You can only use the VD-CR1 video cartridge.
- The video cartridge can be recorded for about 30 minutes camera recording and about 350 still pictures per about 5 seconds.
- It is recommended to edit the recorded pictures onto another tape for saving.

Before you begin

Using this manual

As you read through this manual, buttons and settings on the camcorder are shown in capital letters.
e.g., Press START/STOP.
You can hear the beep sound to confirm your operation.

Note on TV color systems

TV color systems differ from country to country. To view your recordings on a TV, you need a NTSC system-based TV.

Precaution on copyright

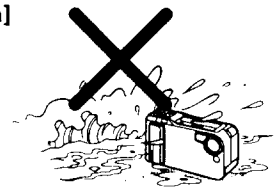
Television programs, films, video tapes, and other materials may be copyrighted. Unauthorized recording of such materials may be contrary to the provision of the copyright laws.

Contents of the recording cannot be compensated if recording or playback is not made due to a malfunction of the camcorder, video cartridge, etc.

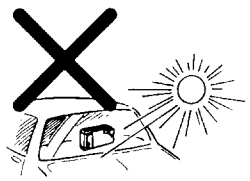
Precautions on camcorder care

- **The LCD screen is manufactured using high-precision technology. However, there may be some tiny black points and/or bright points (red, blue or green in color) that constantly appear on the LCD screen. These points are normal in the manufacturing process and do not affect the recorded picture in any way. Over 99.99% are operational for effective use.**
- Do not let the camcorder get wet. Keep the camcorder away from rain and sea water. Letting the camcorder get wet may cause the unit to malfunction, and sometimes this malfunction cannot be repaired **[a]**.
- Never leave the camcorder exposed to temperatures above 140°F (60°C), such as in a car parked in the sun or under direct sunlight **[b]**.
- Do not let sand get into the camcorder. When you use the camcorder on a sandy beach or in a dusty place, protect it from the sand or dust. Sand or dust may cause the unit to malfunction, and sometimes this malfunction cannot be repaired.

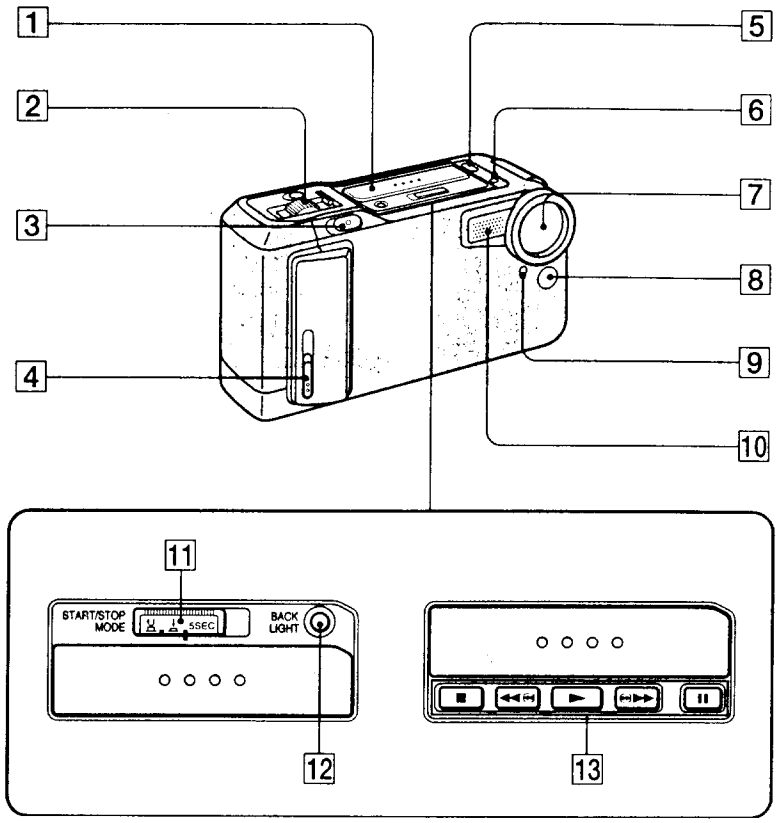
[a]



[b]

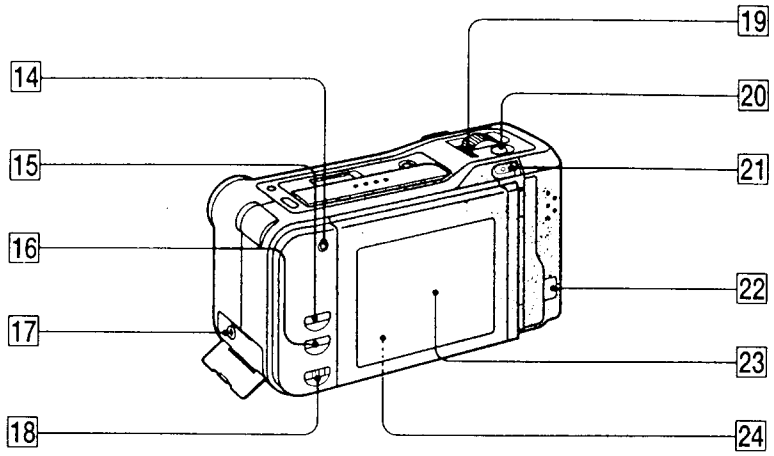


Identifying the parts



1 **Slide cover** (p. 20)
2 **Zoom lever** (p. 15)
3 **START/STOP button** (p. 12)
4 **Open knob for video cartridge compartment** (p. 31)
5 **END SEARCH button** (p. 18, 22)
6 **PHOTO SCAN button** (p. 21, 22)
7 **Lens**
8 **Remote sensor**
You can use the remote commander supplied with other Sony camcorders or VCRs. Set the command mode to VTR 2. See the instruction manual supplied with the VCR about the command mode.
9 **Recording lamp**
10 **Microphone**
11 **START/STOP MODE switch** (p. 13)
12 **BACK LIGHT button** (p. 17)
13 **Video control buttons** (p. 22)
■ STOP (stop)
◄◄ REW (rewind)
► PLAY (playback)
►► FF (fast-forward)
❚❚ PAUSE (pause)

Identifying the parts



14 **Recording lamp**

15 **DATE button** (p. 19, 25)

16 **TIME button** (p. 19, 25)

17 **A/V OUT jack** (p. 23)

18 **SPEAKER ON/OFF switch** (p. 20)

19 **MACRO lock switch** (p. 15)

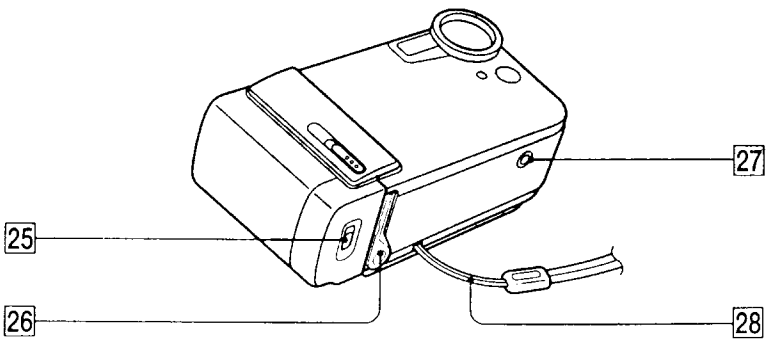
20 **PHOTO button** (p. 14)

21 **POWER ON/OFF switch** (p. 12, 14)

22 **Cord cover** (p. 10)

23 **LCD screen** (p. 12, 14, 20)

24 **Speaker** (p. 20)



25 **OPEN (BATT) release lever** (p. 8)

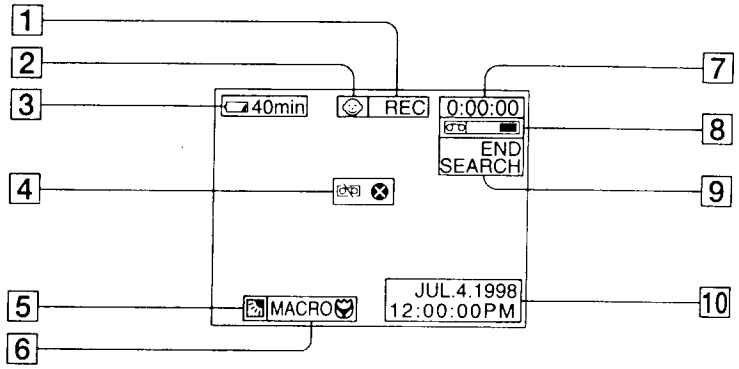
26 **Cartridge eject lever** (p. 31)

27 **Tripod receptacle** (p. 15)
Make sure that the length of the tripod screw is less than 9/32 in. (6.5 mm), otherwise you cannot attach the tripod securely and the screw may damage the camcorder.

28 **Hand strap**
The hand strap is already attached.

Identifying the parts

Operation indicators



1 **Video control mode** (p. 22)

2 **Mirror mode indicator** (p. 16)

3 **Remaining battery time indicator**

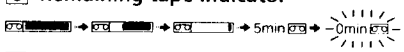
4 **Warning indicators** (p. 34)

5 **Backlight indicator** (p. 17)

6 **MACRO indicator** (p. 15)

7 **Tape counter** (p. 12)**/Self-diagnosis functions indicator** (p. 35)**/5SEC mode indicator** (p. 13)**/Photo recording indicator** (p. 14)

8 **Remaining tape indicator**

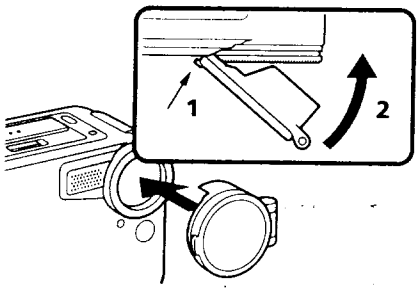


9 **END SEARCH indicator** (p. 18, 22)**/ PHOTO SCAN indicator** (p. 21, 22)

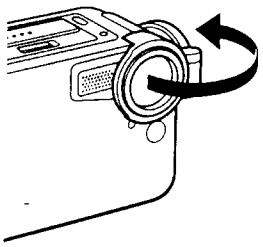
10 **Date and time indicator** (p. 19, 25)

Attaching the lens cap

Attach the supplied lens cap to the lens.
(1) Fit the edge of the lens cap to the hollow.
(2) Push the lens cap until it clicks.



When you shoot, open the lens cap.

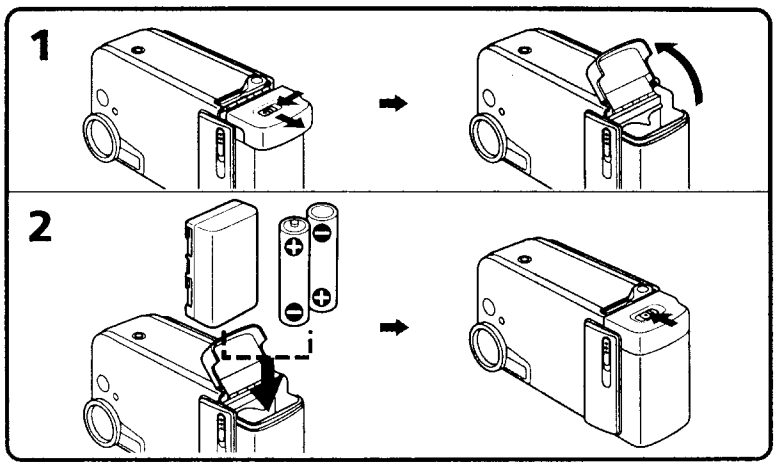


Installing the batteries

Before using your camcorder, you first need to install two size AA (LR6) Sony batteries or the charged battery pack. Use the supplied size AA (LR6) Sony batteries or the NP-F10 "InfoLITHIUM" battery pack (S seriese).
When you install or remove the batteries, be sure to turn off the camcorder to prevent misoperation of the camcorder.
You can also use house current as a power source. (P. 10)

(1) To open the lid of the battery compartment, slide the OPEN (BATT) release lever at the bottom of the camcorder to the left, then slide it toward you and release.

(2) Install two size AA (LR6) batteries or the battery pack in the direction of the arrow. Then close the lid and slide it until it clicks.



Note on size AA (LR6) batteries

- Be sure to install two size AA (LR6) batteries with correct polarity.
- You can not use size AA (LR6) batteries in a cold environment. Use the NP-F10 battery pack.

Battery life

When using two size AA (LR6) Sony batteries or the NP-F10 rechargeable battery pack:

Battery	Size AA (LR6) batteries	NP-F10
Continuous recording time*	60 minutes	90 (80) minutes
Typical recording time**	30 minutes	50 (45) minutes
Playing time on LCD	60 minutes	90 (80) minutes

Numbers in parentheses of NP-F10 indicate the time when you use a normally charged battery.

* Approximate continuous recording time at 77°F (25°C). Battery life will be shorter if you use the camcorder in a cold environment.

** Approximate minutes when recording while you repeat recording start/stop and turning the power on/off. The actual battery life may be shorter.

Installing the batteries

Note on remaining battery time indication during recording
When using the "InfoLITHIUM" battery, remaining battery time is displayed on the LCD screen. However, the indication may not be displayed properly, depending on the conditions and circumstances of use.

To remove batteries

Open the lid of the battery compartment and remove the batteries.

When removing batteries
Always turn the camcorder upside down so that batteries do not fall out when you open the lid.

Using house current

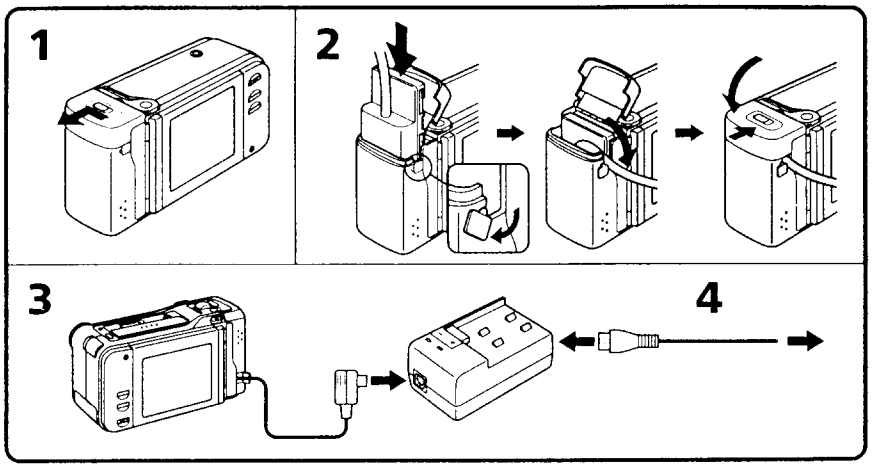
When you install or remove the battery shaped block of the connecting cord, turn off the camcorder to prevent misoperation of the camcorder.

(1) To open the lid of the battery compartment, slide the OPEN (BATT) release lever at the bottom of the camcorder to the left, then slide it toward you and release.

(2) Install the battery shaped block of the DC connecting cord in the direction of the arrow. Open the cord cover and pass the cord through. Then close the lid and slide it until it clicks.

(3) Connect the DC connecting cord to the AC adaptor/charger.

(4) Connect the power cord to the AC adaptor/charger and a wall outlet.



WARNING

The power cord must be changed only at a qualified service shop.

Note

Keep the AC adaptor/charger away from the camcorder if the picture is affected.

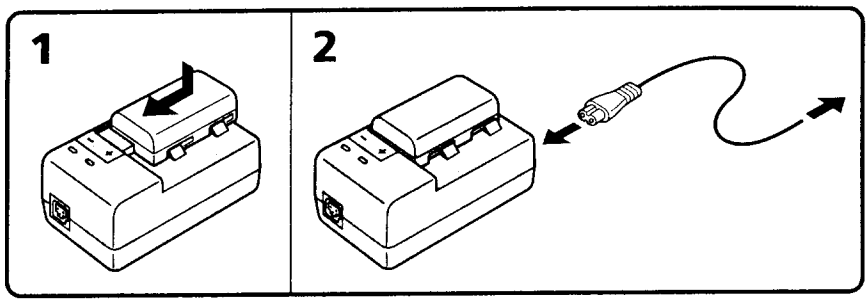
Charging the battery pack

Charge the battery pack on a flat surface without vibration. The supplied battery pack NP-F10 is charged a little at the factory. To charge the battery pack, use the supplied AC-VF10 AC adaptor/charger.

(1) Fit and slide the battery pack in the direction of the arrow.

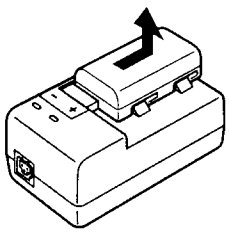
(2) Connect the power cord to the AC adaptor/charger and a wall outlet. The CHARGE lamp (orange) lights up. Charging begins.

When the CHARGE lamp goes out, **normal charge** is completed. For **full charge**, which allows you to use the battery longer than usual, leave the battery pack attached for about 1 hour after normal charge is completed.



To remove the battery pack

Slide the battery pack in the direction of the arrow.



Charging time

When using the NP-F10 rechargeable battery pack:

Charging time*	145 (85) minutes

The number in parentheses indicates the time when you use a normally charged battery.

* Approximate minutes to charge an empty battery pack using the supplied charger. (Lower temperatures require a longer charging time.)

Shooting

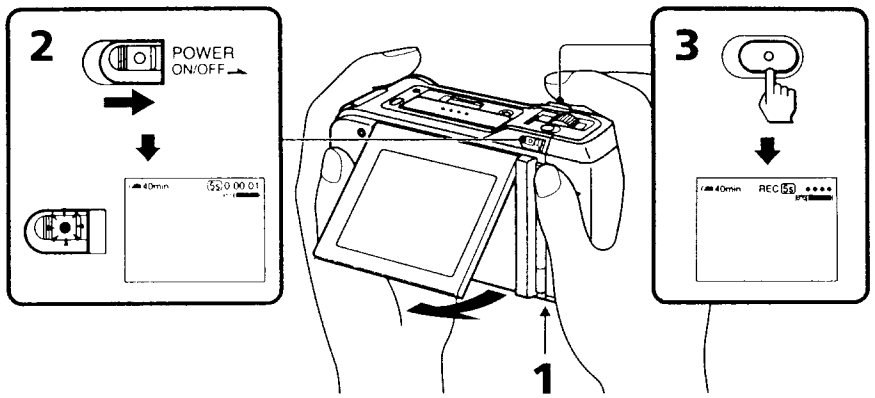
Camera recording

Before you record one-time events, you may want to make a trial recording to make sure that the camcorder is working correctly.

(1) Make sure that the power source is installed. (p. 8, 10)

(2) While pressing the small button on the POWER switch, slide it in the direction of the arrow. The small button lights up green.

(3) Press START/STOP. The camcorder records for about 5 seconds and stops. The tape counter disappears and five dots appear. The dots disappear at a rate of one per second. The red lamps light up.
To extend the recording time in 5SEC mode, press START/STOP again before all the dots disappear. Recording continues for about 5 seconds from the moment you press START/STOP.



Adjusting the LCD panel angle

Adjust the LCD panel to the angle you want.

Note

To save battery power and prevent the battery and tape from wearing down, the power turns off automatically if you do not operate the camcorder for 5 minutes while the video cartridge is inserted and the power is on. To start recording, turn the power on again and press START/STOP.

Selecting the START/STOP mode

Your camcorder has three camera recording modes. These modes enable you to take a series of quick shots resulting in a lively video.

Set START/STOP MODE to the desired mode.

5SEC: When you press START/STOP, the camcorder records for about 5 seconds and then stops automatically (factory setting).

ANTI GROUND SHOOTING : The camcorder records only while you press down START/STOP so that you can avoid recording unnecessary scenes.

: Recording starts when you press START/STOP, and stops when you press it again.

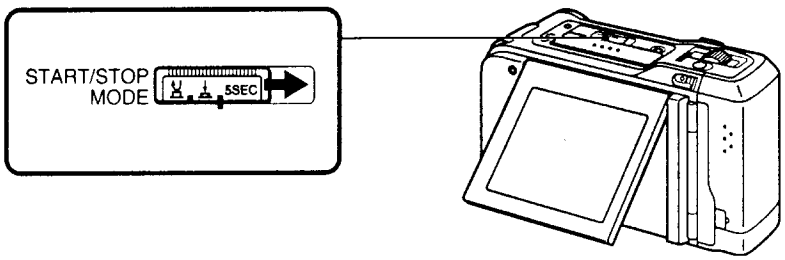


Photo recording

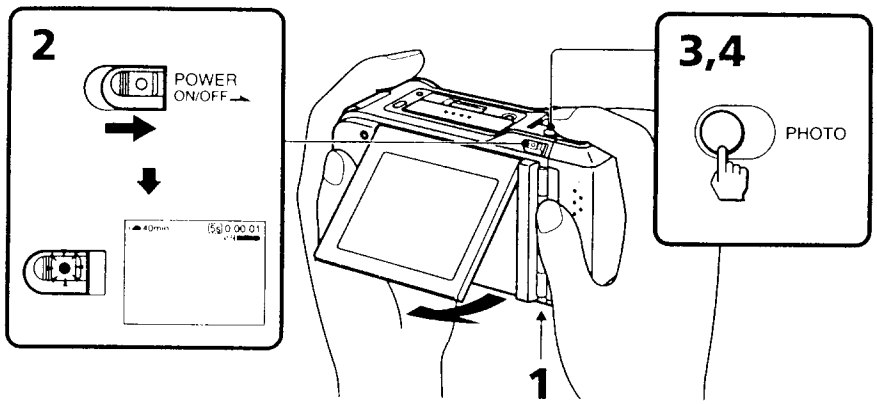
You can record a still picture like a photograph for about five seconds. Photo recording is useful when you want to enjoy a picture such as a photograph or when you print a picture using a video printer.

(1) Make sure that the power source is installed. (p. 8, 10)

(2) While pressing the small button on the POWER switch, slide it in the direction of the arrow. The small button lights up green.

(3) Keep pressing PHOTO lightly until a still picture and "📷 CAPTURE" appear on the LCD screen. To change the still picture, release PHOTO, select still picture again, and keep pressing PHOTO lightly again.

(4) Press PHOTO deeper. The still picture on the LCD screen is recorded for about five seconds. The tape counter disappears and five dots appear. The dots disappear at a rate of one per second. The red lamps light up. The sound during those five seconds is also recorded.



Adjusting the LCD panel angle

Adjust the LCD panel to the angle you want.

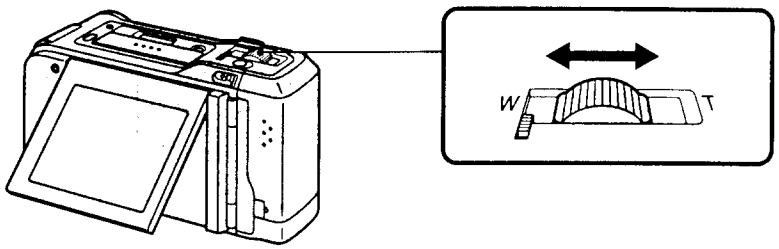
To prevent camera-shake

When shooting a still picture, the slightest movement of the camcorder is noticeable. To prevent camera-shake, hold the camcorder firmly or use a tripod.

Advanced operations

Using the zoom feature

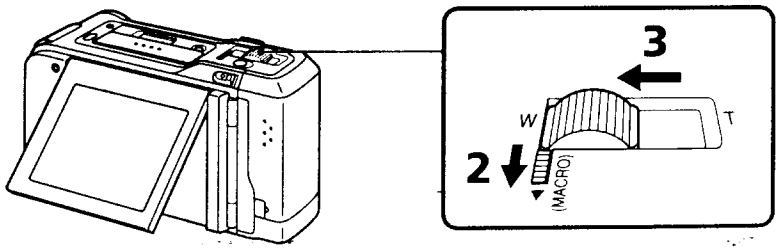
Zooming is a recording technique that lets you change the size of the subject in the scene.
For more professional-looking recordings, use the zoom function sparingly.
"T" side: for telephoto (subject appears closer)
"W" side: for wide-angle (subject appears farther away)



When you shoot a subject using the telephoto zoom
If you cannot get a sharp focus while in extreme telephoto zoom, move the zoom lever to the "W" side until the focus is sharp. You can shoot a subject that is at least about 55 1/8 in. (140 cm) away from the lens surface in the telephoto position, or about 15 3/4 in. (40 cm) away in the wide-angle position. When you shoot a subject closer than about 15 3/4 in. (40 cm), we recommend you shoot in macro.

Shooting a subject closer – Macro

Even small subjects, such as flowers, insects, and images in photographs, can literally fill the screen in macro. You can shoot a subject that is at least about 10 cm (4 in.) away from the lens surface in macro.
We recommend you to use a tripod when shooting in macro.
(1) Bring the camcorder as close as necessary to obtain the desired subject size.
(2) Slide the MACRO lock switch in the direction of the arrow.
(3) Move the zoom lever to the "W" side end. The MACRO indicator appears on the LCD screen.



Letting the subject monitor the shot (Mirror mode)

You can turn the LCD panel over so that it faces the other way and you can let the subject monitor the shot.

(1) Turn the LCD panel up vertically. The ☺ indicator (Mirror mode) appears and the date and remaining tape indicators disappear.

(2) Start recording.

[a] **[b]**

[a] LCD screen image.
[b] Recording image.

To cancel mirror mode

Turn the LCD panel down toward the camcorder body.

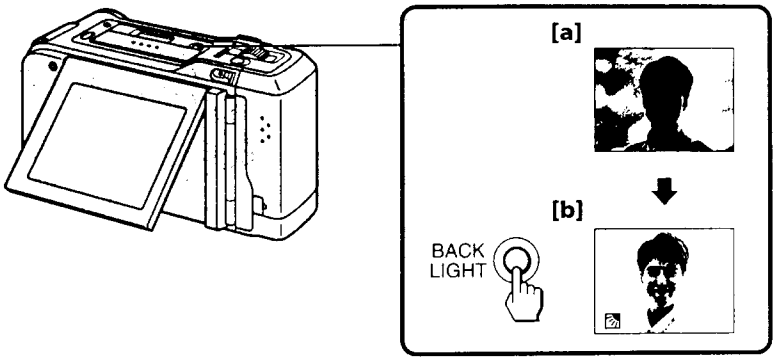
Notes on mirror mode

- The picture on the LCD appears as a mirror-image while recording in mirror mode. The REC indicator appears as ●. The other indicators may not appear in mirror mode.
- While recording in mirror mode, you cannot operate the DATE and TIME.

Shooting with backlighting

When you shoot a subject with the light source behind the subject or a subject with a light background, use the BACK LIGHT function.

Press BACK LIGHT. The ◘ indicator appears on the LCD screen.



[a] Subject is too dark because of backlight.
[b] Subject becomes bright with backlight compensation.

After shooting

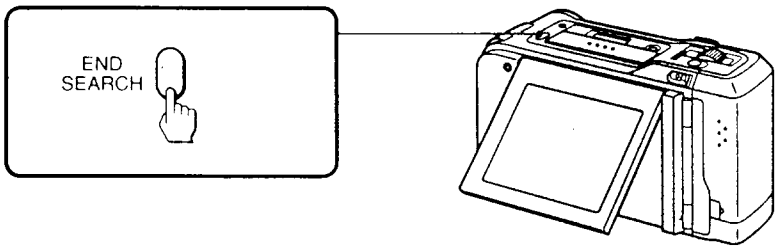
Be sure to release this adjustment condition by pressing BACK LIGHT again. The ◘ indicator disappears. Otherwise, the picture will be too bright under normal lighting conditions.

This function is also effective under the following conditions:

- A subject with a light source nearby or a mirror reflecting light.
- A white subject against a white background. Especially when you shoot a person wearing shiny clothes made of silk or synthetic fiber, his or her face tends to become dark if you do not use this function.

Searching for the end of the picture

Press END SEARCH during stop.
The tape starts rewinding or fast-forwarding and the last 5 seconds of the recorded portion play back. Then the tape stops at the end of the recorded picture.

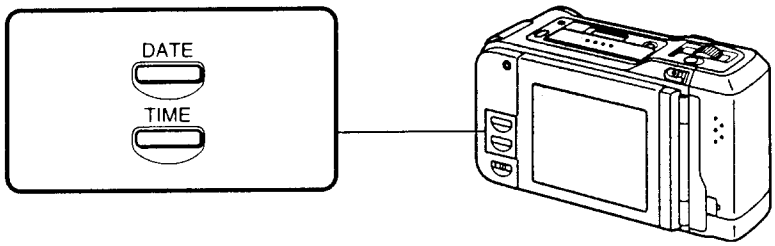


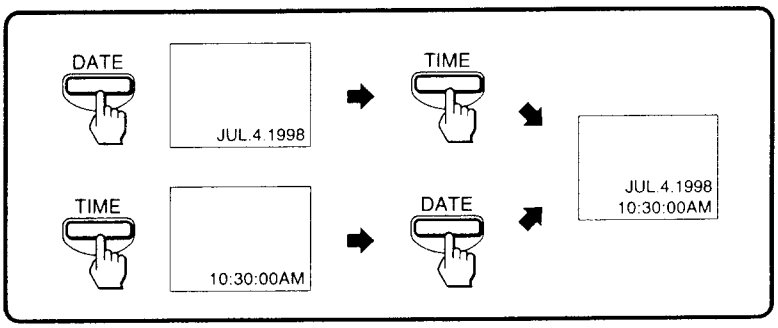
If you start recording after using END SEARCH
Occasionally, the transition between the last scene you recorded and the next scene may not be smooth.

Recording with the date/time

Before you start recording or during recording, press DATE and/or TIME. You can record the date and/or time displayed on the LCD screen with the picture. Press DATE (or TIME), then press TIME (or DATE) to display the date and time together. Except for the date and/or time indicator, no indicator on the LCD screen is recorded.
The clock is set at the factory to London time for the United Kingdom and Paris time for the other European countries. You can reset the clock. (p.25)

Press DATE and/or TIME before you start recording or during recording.





Note on recording with the date and/or time
Once you record the date and/or time, you cannot erase it.

To stop recording with the date and/or time

Press DATE and/or TIME again. The date and/or time indicator disappears. The recording continues.

To finish recording

While pressing the small button on the POWER switch, slide it to turn off the camcorder. And remove the batteries.
We recommend you turn off the camcorder to prevent wearing down the battery while you do not use the camcorder.

Playing back

You can monitor the playback picture on the LCD screen.

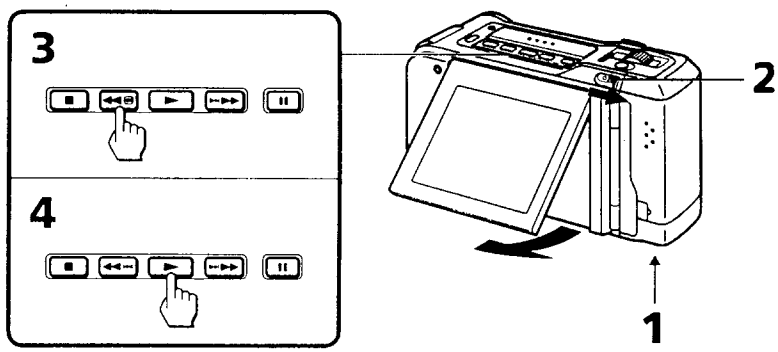
(1) Make sure that the power source is installed. (p. 8, 10)

(2) While pressing the small button on the POWER switch, slide it in the direction of the arrow. The small button lights up green.

(3) Press ◄◄ to rewind the tape.

(4) Press ► to start playback.

You can also monitor the picture on a TV screen, after connecting the camcorder to a TV or VCR.



Adjusting the LCD panel angle

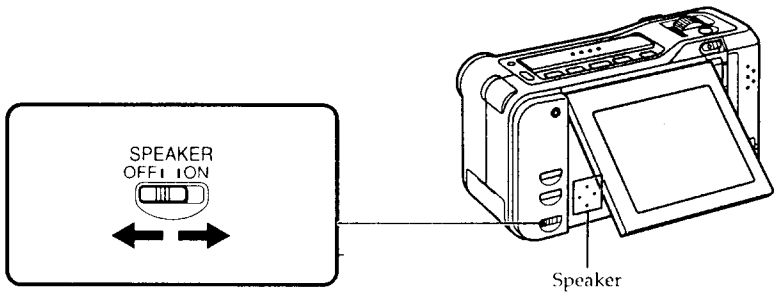
Adjust the LCD panel to the angle you want.

When playing back in the dark

You may find it difficult to view the LCD screen in the dark. We recommend you to monitor the playback picture on the LCD screen where there is more light.

To turn off the speaker

Slide the SPEAKER ON/OFF switch to OFF. To turn on the speaker, slide it to ON.



Searching for still pictures

You can search for still pictures one after another and display each picture for about 8 seconds automatically (Photo Scan).

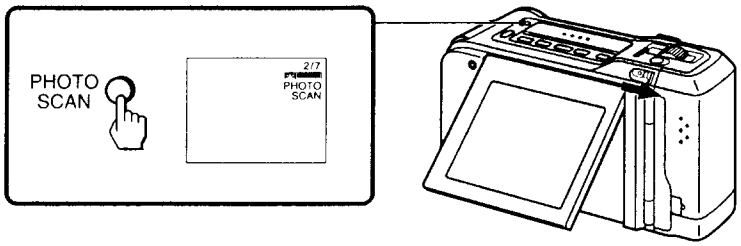
(1) Make sure that the power source is installed. (p. 8, 10)

(2) While pressing the small button on the POWER switch, slide it in the direction of the arrow. The small button lights up in green.

(3) Press ◀◀ to rewind the tape to the beginning.

(4) Press PHOTO SCAN during stop.

Photo scan indicator appears on the LCD screen. Each still picture is displayed for about 8 seconds automatically. The number of the displayed picture and total number of the still pictures are displayed.



To stop searching

Press PHOTO SCAN or ■.

Notes on Photo Scan

- The sound is muted.
- The camcorder starts searching from where you pressed PHOTO SCAN.

Playing back

Various playback modes

To stop playback
Press ■.

To view a still picture (playback pause)
Press ❚❚ during playback. To resume playback, press ❚❚ or ►.

To fast-forward the tape rapidly
Press ►►. To resume playback, press ►.

To rewind the tape
Press ◄◄. To resume playback, press ►.

To locate a scene (picture search)
Keep pressing ◄◄ or ►► during playback. To resume normal playback, release the button.

To monitor the high-speed picture while advancing the tape or rewinding (skip scan)
Keep pressing ◄◄ while rewinding or ►► while advancing the tape. To resume rewinding or advancing, release the button. To resume normal playback, press ►.

To search for the end of the picture (End Search)
Press END SEARCH during stop. The tape starts rewinding or fast-forwarding and the last 5 seconds of the recorded portion play back. Then the tape stops at the end of the recorded picture.

To search for still pictures (Photo Scan)
Press PHOTO SCAN during stop. Each picture is displayed for about 8 seconds automatically. Then the tape stops at the end of the recorded still picture.

Notes on playback

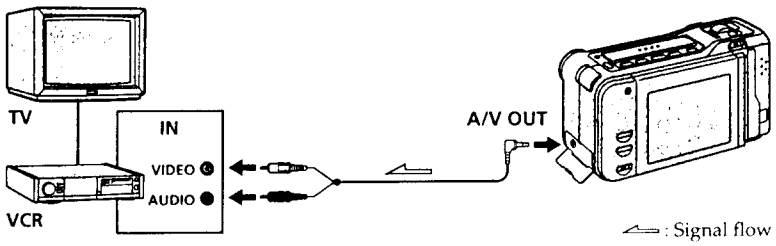
- The following may occur in the various playback modes.
  - Streaks appear and the picture jitters.
  - The sound is muted.
- When playback pause mode lasts for 5 minutes, the camcorder automatically turns off to save battery power and prevent the battery and tape from wearing down. To start viewing a still picture, turn the power on again and press ❚❚ during playback.

Watching on a TV screen

Connect the camcorder to your TV or VCR to watch the playback picture on the TV screen. Use the supplied A/V connecting cable. When monitoring the playback picture by connecting the camcorder to your TV, we recommend you to use house current for the power source.

Connecting directly to a TV/VCR with Video/Audio input jacks

Open the jack cover. Connect the yellow plug of the A/V connecting cable to video input on the TV or VCR connected to the TV. And connect the black plug of the A/V connecting cable to audio input on the TV or VCR connected to the TV.
Set the TV/VCR selector on the TV to VCR. When connecting to the VCR, set the input selector on the VCR to LINE.



If your TV or VCR is a stereo type
Connect only the black plug for audio L (left) on the TV or the VCR. With this connection, the sound is monaural even in stereo model.

When acoustic feedback (howling) occurs
Move the camcorder away from the TV or turn down the volume of the TV.

Editing

Editing onto another tape

You can save the recorded picture and create your own video program by editing with any other 8 8 mm, Hi8 Hi8, VHS VHS, S-VHS S-VHS, VHSC VHSC, S-VHSC S-VHSC, Betamax VCR or DV DV that has video/audio inputs.

Before editing

Connect the camcorder to the VCR using the supplied A/V connecting cable.
Set the input selector on the VCR to LINE, if available.

If your VCR is a stereo type

Connect only the black plug for audio L (left) on the VCR. With this connection, the sound is monaural even in stereo models.

Starting editing

Turn off the speaker of the camcorder while editing. Otherwise, picture distortion may occur.

(1) Insert a blank tape (or a tape you want to record over) into the VCR.
(2) Play back the recorded video cartridge on the camcorder until you locate the point just before where you want to start editing, then press ❚❚ to set the camcorder in playback pause mode.
(3) On the VCR, locate the recording start point and set the VCR in recording pause mode.
(4) First press ❚❚ on the camcorder, and after a few seconds press ❚❚ on the VCR when you want to start editing.

To edit more scenes

Repeat steps 2 to 4.

To stop editing

Press ■ on both the camcorder and the VCR.

Resetting the date and time

The DATE and/or TIME can be recorded with the picture. The date and time are set at the factory to London time for the United Kingdom and to Paris time for the other European countries. Set the time according to the local time in your country.

(1) While pressing the small button on the POWER switch, slide it in the direction of the arrow. The small button lights up green.

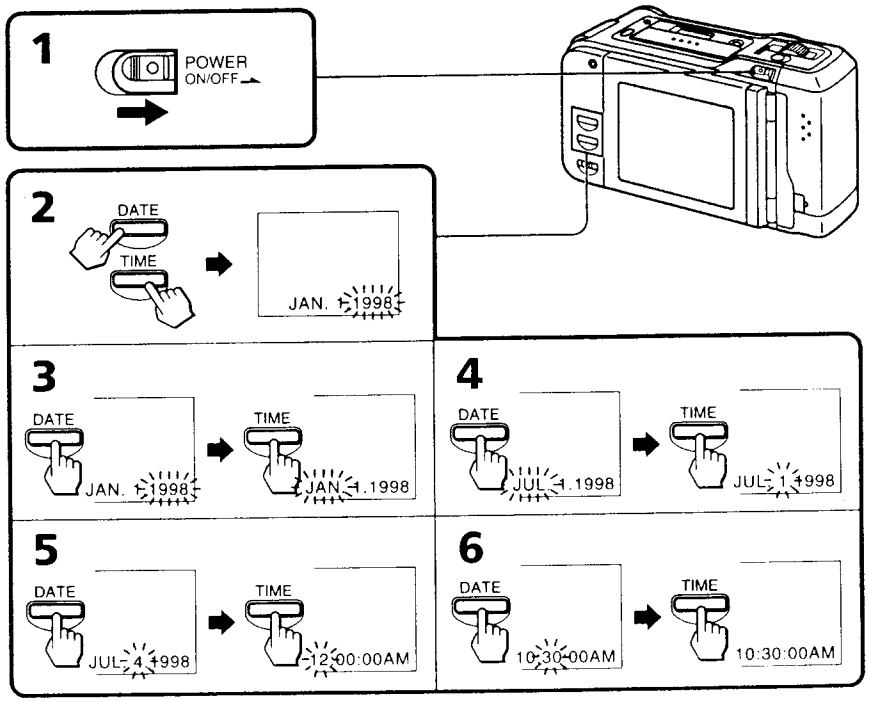
(2) Press DATE and TIME simultaneously for more than 2 seconds until the year flashes on the LCD screen.

(3) Set the year.
Adjust the flashing year digits with DATE and then press TIME.

(4) Set the month.
Adjust the flashing month digits with DATE and then press TIME.

(5) Set the day and hour by the same way as setting the year and month.

(6) Set the minute and second.
Adjust the flashing minute digits with DATE and then press TIME. The clock starts operating.



Resetting the date and time

About the lithium battery

Your camcorder is supplied with a rechargeable lithium battery installed so as to retain the date and time, regardless of the setting of the power. The lithium battery is always charged as long as you are using the camcorder. The battery, however, will discharge gradually if you use the camcorder for a short time. It will be completely discharged in about a half year if you do not use the camcorder for a long period. Even if the lithium battery is not charged, it will not affect the camcorder operation. To retain the date and time, charge the battery if the battery is discharged. The following are charging methods:

- Connect the camcorder to the house current using the supplied AC adaptor/charger, and leave the camcorder with the power turned off for more than 24 hours.
- Install the fully charged battery pack in the camcorder, and leave the camcorder with the power turned off for more than 24 hours.

To check the preset date and time

Press DATE to display the date indicator.
Press TIME to display the time indicator.
When you press the same button again, the indicator goes off.

The year changes as follows:

1998 ⟷ 1999 ⟵ · · · · ⟶ 2029

Note on the time indicator

The internal clock of this camcorder operates on a 12-hour cycle.
•12:00:00 AM stands for midnight. •12:00:00 PM stands for noon.

Tips for using batteries

This section shows you how you can get the most out of your batteries.

Preparing the batteries

Always carry additional batteries

Have sufficient battery power to do 2 to 3 times as much recording as you have planned.

Battery life is shorter in a cold environment

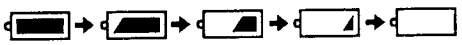
You cannot use size AA (LR6) batteries in a cold environment. Use the battery pack NP-F10.
Battery efficiency is decreased, and the battery pack will be used up more quickly, if you are recording in a cold environment.

To save battery power

Turn off the camcorder when not recording to save battery power.
A smooth transition between scenes can be made even if recording is stopped and started again. While you are positioning the subject, selecting an angle, or looking on the LCD screen, the battery is used.

When to replace the battery

While you are using your camcorder, the remaining battery indicator decreases gradually as battery power is used up. When you use the "InfoLITHIUM" battery pack, remaining time in minutes appears.



When the remaining battery indicator reaches the lowest point, the ⌧ indicator may appear and start flashing on the LCD screen.
When the ⌧ indicator changes from slow flashing to rapid flashing while you are recording, turn off the camcorder replace the battery pack or size AA (LR6) batteries. Leave the video cartridge in the camcorder to obtain a smooth transition between scenes after the battery pack has been replaced.

Tips for using batteries

Notes on the "InfoLITHIUM" battery pack

What is "InfoLITHIUM"

This camcorder operates only with the "InfoLITHIUM" battery pack (NP-F10).
"InfoLITHIUM" is a trademark of Sony Corporation.
The "InfoLITHIUM" is a lithium ion battery pack which can exchange data with compatible video equipment about its battery consumption.

To obtain more accurate remaining battery indication

Turn on the camcorder and point towards a stationary object. Do not move the camcorder for 30 seconds or more.

Caution

Never leave the battery pack in temperatures above 140°F (60°C), such as in a car parked in the sun or under direct sunlight.

The battery pack heats up

During charging or recording, the battery pack heats up. This is caused by energy that has been generated and a chemical change that has occurred inside the battery pack. This is normal and is not cause for concern.

Be sure to observe the following

- Keep the battery pack away from fire.
- Keep the battery pack dry.
- Do not open nor try to disassemble the battery pack.
- Do not expose the battery pack to any mechanical shock.

The life of the battery pack

If the battery indicator flashes rapidly just after turning on the camcorder with a fully charged battery pack, the battery pack should be replaced with a new fully charged one.

Charging temperature

You should charge batteries at temperatures from 50°F to 86°F (from 10°C to 30°C). Lower temperatures require a longer charging time.

Tips for using the batteries

Notes on size AA (LR6) batteries

To avoid possible damage from battery leakage or corrosion, observe the following.
- Be sure to insert the batteries in the correct direction.
- Dry batteries are not rechargeable.
- Do not use a combination of new and old batteries.
- Do not use different types of batteries.
- The batteries slowly discharge while not in use.
- Do not use a battery that is leaking.

If battery leakage occurred
- Wipe off the liquid in the battery case carefully before replacing the batteries.
- If you touch the liquid, wash it off with water.
- If the liquid get into your eyes, wash your eyes with a lot of water and then consult a doctor.

Notes on AC adaptor/charger

- Unplug the unit from the wall outlet when not in use for a long time. To disconnect the power cord, pull it out by the plug. Never pull the power cord itself.
- Do not operate the unit with a damaged cord or if the unit has been dropped or damaged.
- Do not bend the power cord forcibly, or put a heavy object on it. This will damage the cord and may cause a fire or electrical shock.
- Be sure that nothing metallic comes into contact with the metal parts of the connecting plate. If this happens, a short may occur and the unit may be damaged.
- Always keep the metal contacts clean.
- Do not disassemble the unit.
- Do not apply mechanical shock or drop the unit.
- While the unit is in use, particularly during charging, keep it away from AM receivers and video equipment because it will disturb AM reception and video operation.
- The unit becomes warm while in use. This is normal.
- Do not place the unit in locations that are:
  - Extremely hot or cold
  - Dusty or dirty
  - Very humid
  - Vibrating

If any difficulty should arise, unplug the unit and contact local authorized Sony service facility.